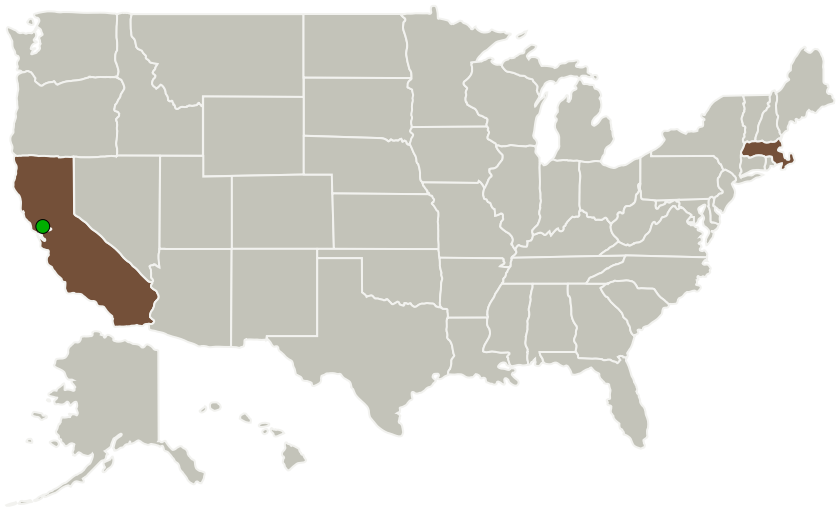
AIRSAFE: Analytics to Improve Reliability & Safety in Flight Environments, Phase I

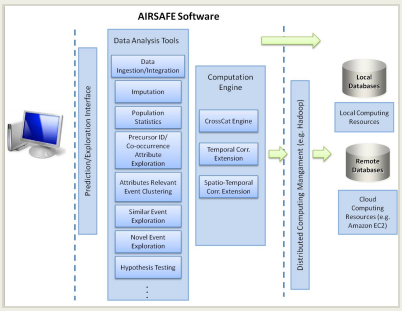
Completed Technology Project (2014 - 2014)

Project Introduction

The increased system complexity resulting from interaction of human and automated systems in aviation programs introduces new challenges that need to be addressed. Many notable flight incidents can be wholly or partially attributed to crew error, either due to inexperience with the aircrafts automated control systems or in response to component failures or adverse conditions. Flight safety experts can piece together information and data from multiple sources to identify the cause after an accident or incident has occurred whether it is due to human errors, machine failures or a combination of both. It is therefore reasonable to expect that much of the information is already dispersed in various databases and, with the right tools, flight safety experts can identify deficiencies and factors that may provide indicators or serve as precursors of accidents. Such actionable knowledge will lead to better training, design and/or onboard systems to ensure safety. In response to this need, SSCI proposes to build Analytics to Improve Reliability & SAfety in Flight Environments (AIRSAFE), a software toolbox that assists flight safety analysts in discovering key factors and their interactions among a large number of potentially relevant factors, testing one's hypothesis on the key factors to safety, and identifying previous incidents that support the hypothesis. The software toolbox is built on our previous and on-going efforts, such as DARPA's XDATA program, in BigData machine learning.

Primary U.S. Work Locations and Key Partners





AIRSAFE: Analytics to Improve Reliability & SAfety in Flight Environments Project Image

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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Scientific Systems Company, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Woburn, Massachusetts
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Massachusetts

Project Transitions

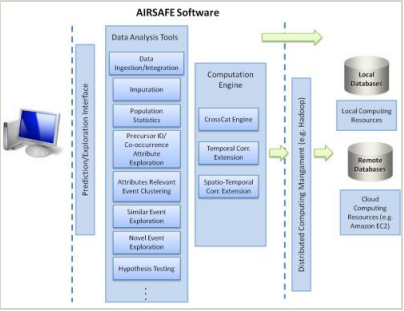
June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137513)*

Images



Project Image
AIRSAFE: Analytics to Improve Reliability & SAfety in Flight Environments Project Image *(https://techport.nasa.gov/image/133397)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Scientific Systems Company, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

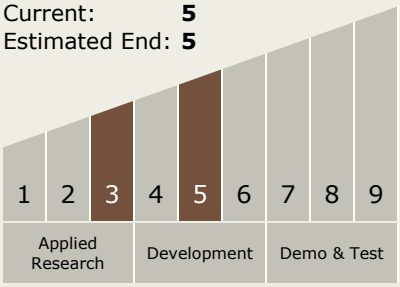
Carlos Torrez

Principal Investigator:

Ssu-hsin Yu

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System